

What is claimed is:

1. A composition or ladder comprising a mixture of nucleic acid fragments of different lengths wherein the relative mass of each fragment is substantially equivalent.

2. The composition or ladder according to claim 1, wherein said different length fragments produce bands after gel electrophoresis, said bands having substantially equal intensity.

3. A composition or ladder comprising a mixture of nucleic acid fragments of different sizes, wherein the differently sized fragments are capable of producing bands after gel electrophoresis and staining, said bands having substantially equal intensity.

4. The composition or ladder according to claim 1 wherein said nucleic acid is DNA.

5. The composition or ladder according to claim 1, wherein each of said fragments differ in length by X base pairs, wherein x is an integer equal to or greater than 10.

6. The composition or ladder according to claim 5, wherein x is an integer equal to or greater than 100.

7. The composition or ladder according to claim 1, wherein said mixture comprises fragments having two or more increments of about 1 kb in length.

8. The composition or ladder according to claim 7, wherein said fragments range in size from about 25 kb to about 1 kb.

9. The composition or ladder according to claim 1, wherein said fragments are multiples of about 1 kb.

10. The composition or ladder according to claim 1, wherein said mixture comprises fragments having one or more increments selected from the group consisting of, about 50 bp in length, and about 10 bp in length, about 100 bp in length, about 500 bp in length, and about 1000 bp in length.

11. The composition or ladder according to claim 7, further comprising fragments having one or more increments selected from the group consisting of about 100 bp in length, about 500 bp in length, about 50 bp in length, and about 10 bp in length.

12. The composition or ladder according to claim 7, further comprising fragments having one or more multiples selected from the group consisting of about 100 bp in length,

about 500 bp in length, about 50 bp in length, and about 10 bp in length.

13. The composition or ladder according to claim 11 which comprises one or more fragments at a relative mass sufficient to product one or more highlight bands after gel electrophoresis and staining.

14. The composition or ladder according to claim 12 which comprises one or more fragments at a relative mass sufficient to product one or more highlight bands after gel electrophoresis and staining.

15. The composition or ladder according to claim 1, wherein one or more of said nucleic acid fragments are single stranded.

16. The composition or ladder according to claim 1, wherein one or more of said nucleic acid fragments are double stranded.

17. The composition or ladder according to claim 16, wherein said double stranded fragments are blunt ended.

18. The composition or ladder according claim 16, wherein said double stranded fragments comprise a single stranded overhang at each terminus.

19. The composition or ladder according to claim 18, wherein said single stranded overhang comprises one or more nucleotides selected from the group consisting of G, A, T, and C.

20. The composition or ladder according to claim 19, wherein said overhang comprise G, A, T and C.

21. The composition or ladder according to claim 1, wherein said relative mass of each fragment is no more than about 3 times the relative mass of another fragment.

22. The composition or ladder according to claim 1, wherein said relative mass of each fragment is no more than about 2 times the relative mass of another fragment.

23. The composition or ladder according to claim 1, wherein said relative mass of each fragment is no more than about 1.5 times the relative mass of another fragment.

24. The composition or ladder according to claim 1, wherein said mass of each fragment is about the same.

25. The composition or ladder according to claim 1, wherein said fragments are detectable labeled.

26. The composition or ladder according to claim 25, wherein said detectable label is selected from the group consisting of a radiolable, a fluorescent label, and a chemiluminescent label.

27. The composition or ladder according to claim 4, wherein said mixture of DNA fragments comprises about 9 copies of 100 bp fragment, about 4 copies of a 200 bp fragment, about 3 copies of 400 bp fragment, about 2 copies of 500 bp fragment, about 1 copy of 650 bp fragment, about 1 copy of 850 bp fragment, about 12 copies of 1000 bp fragment, and about 1 copy of 1650 bp fragment.

28. A recombinant DNA molecule comprising the fragments according to claim 1.

29. The recombinant DNA molecule according to claim 28, wherein said molecule is a vector.

30. The recombinant DNA molecule according to claim 29, wherein said vector is a plasmid.

31. The recombinant DNA molecule according to claim 30, wherein said plasmid is pKB1847.

32. A host cell comprising the recombinant DNA molecule of claim 28.

33. A host cell comprising the recombinant DNA molecule of claim 29.

34. A host cell comprising the recombinant DNA molecule of claim 31.

35. A ladder resulting from the enzymatic digestion of the recombinant molecule according to claim 28.

36. A ladder resulting from the enzymatic digestion of the recombinant molecule according to claim 29.

37. A ladder resulting from the enzymatic digestion of the recombinant molecule according to claim 31.

38. A method for sizing one or more nucleic acid molecules of unknown length, said method comprising:

a) separating according to size the fragments of the composition or ladder according to claim 1 with said nucleic acid molecules; and

b) determining the size of said nucleic acid molecules.

39. A kit comprising fragments of claim 1.

40. The kit according to claim 39, wherein said fragments are mixed in a single container.

41. The kit according to claim 39, wherein said different sized fragments are separated in different containers.

42. The kit according to claim 39, further comprising a detectable stain.

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